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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,044	01/19/2001	Chyi-Tsong Ni	TS00-355	6921

28112 7590 04/01/2003

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EXAMINER

BREWSTER, WILLIAM M

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 04/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

09/765,044

Applicant(s)

NI ET AL.

Examiner

William M. Brewster

Art Unit

2823

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 21 February 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☐ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: _____.

Claim(s) withdrawn from consideration: _____.

8. ☐ The proposed drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____.

Continuation of 5. does NOT place the application in condition for allowance because: In Paper No. 9, received 21 February 2003, the applicant responds to the final rejection, Paper No. 8, sent 13 December 2002. Applicant argues that the prior art of record Perng in view of Ngo does not teach the limitations of 1, 2, 8-11, 17-20, 26-31, and the prior art of record, Perng in view of Ngo, in further view of Tao does not teach the limitations of 3 -7, 12-16, 21-25, 32-34.

As the examiner understands the claims as taught by the specification, applicant seeks to patent an invention which forms three oxide layers: 1) a pre-coat oxide of the CVD chamber walls with a PECVD oxide of a first deposition rate, displayed in fig. 1, layer 16; 2) placing a semiconductor wafer within the chamber, and depositing a second PECVD oxide with a thermal CVD rate, displayed in fig. 3, layer 22; and 3) depositing third oxide layer, consisting of a porous oxide different from the first PECVD oxide, displayed in fig. 3, layer 20.

Perng teaches a method with step 2) placing a semiconductor wafer on the wafer chuck/heater within the CVD chamber; in fig. 3, the semiconductor wafer 306 including an upper second PECVD silicon oxide film 302, with TEOS, col. 10, line 50 - col. 11, line 8, preheating the chamber to about 400 C, col. 11, lines 9 - 37, having a second thermal CVD oxide deposition rate, and step 3) depositing a porous silicon oxide film 312 upon the upper second PECVD silicon oxide film overlying the semiconductor wafer, thickness of less than about 10,000 Å, col. 10, lines 26 - 39, with a lesser deposition rate, col. 11, lines 38 - 64; the porous silicon oxide film being different from the first PECVD silicon oxide film coating the CVD chamber inner walls.

Ngo teaches a method, with step 1) in fig. 3, of pre-coating 302 at least a portion of the CVD chamber inner walls with a layer of first PECVD silicon oxide film having a first thermal CVD oxide deposition rate thereupon, col. 2, lines 36 - 52, and step 2) then deposits a first layer of PECVD oxide, col. 3, lines 4 - 10. Ngo gives motivation in col. 1, lines 31-33, which facilitates producing a high quality, uniform and very thin PECVD oxide layer.

All of the previous cites were provided in Paper No. 8.

As the pre-coat step may take place without the wafer inside it and as neither Perng nor Ngo restrict their use to just the steps stated, the inventions are combinable.


Tao teaches in fig. 2, forming a semiconductor substrate 30, and forming step 2) a second PECVD oxide 40 at a first rate, col. 7, lines 51-62; and step 3) depositing an oxide layer 42 with TEOS, col. 7, line 64 - col. 8, line 41. Tao gives motivation in col. 2, lines 13-56, aiding in forming vias through the oxide layers that have flat, instead of rounded bottoms.

Applicant argues that the combined references do not teach a difference in the deposition rates of the second and third oxide layers. Examiner disagrees. Perng in col. 10, lines 5-25 teaches an improved film quality and rate of deposition from the second oxide to the third porous oxide. Tao teaches different flow rates from depositing the second oxide, col. 7, lines 51-64, and the third deposited oxide in col. 8, lines 26-41.

The end user may also optimize the temperature and flow rates to achieve the desired depositing rates.

As a rule, obviousness is based upon what the "references taken collectively would suggest to those of ordinary skill in the art." In re Rosselet, 146 USPQ 183, 186 (CCPA 1965). Furthermore, one cannot show non-obviousness by merely attacking references individually where the rejections are based on combinations of references. In re Keller, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 231 USPQ 375 (Fed. Cir. 1986). Instead, there must be an absence of "some teaching, suggestion or incentive supporting the prior art combination that produces the claimed invention." In re Bond, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). "Just as piecemeal reconstruction of the prior art by selecting teachings in light of [the] disclosure is contrary to the requirements of 35 USC § 103, so is the failure to consider as a whole the references collectively as well as individually." In re Passal, 165 USPQ 720, 723 (CCPA 1970).

For the above reasons, the §103(a) rejections of Paper No. 8 is proper.


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